

Review Form 3

| | |
|--------------------------|--|
| Journal Name: | Asian Journal of Probability and Statistics |
| Manuscript Number: | Ms_AJPAS_127604 |
| Title of the Manuscript: | Advancing Statistical Methodologies for Composite Phenotype Analysis in Genome-Wide Association Studies |
| Type of the Article | |

General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

<https://r1.reviewerhub.org/general-editorial-policy/>

Important Policies Regarding Peer Review

Peer review Comments Approval Policy: <https://r1.reviewerhub.org/peer-review-comments-approval-policy/>

Benefits for Reviewers: <https://r1.reviewerhub.org/benefits-for-reviewers>

Review Form 3

PART 1: Comments

| | Reviewer's comment | Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i> |
|---|---|---|
| Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part. | <p>Your work on the use of new statistical methods in GWAS is both fascinating and innovative. The application of the CLMM to analyze phenotypic data combined from different plant developmental stages is a very clever and efficient approach. By integrating data from various growth stages, this research not only enhances the power of detecting genetic associations but also provides deeper insights into the developmental dynamics of plants that might be overlooked using conventional methods that analyze each trait separately.</p> <p>The use of dimensionality reduction and data compression techniques in CLMM also demonstrates a deep understanding of the challenges involved in analyzing large datasets while maintaining computational efficiency. This is particularly relevant given the rapidly increasing volume of genomic data. The results showing that the model incorporating three phenotypic traits (plant volume, plant height, and plant surface area) provided a better fit compared to other models, along with identifying more SNPs, are strong evidence of the success of this approach.</p> <p>Overall, this work presents a significant contribution to the development of GWAS methodology, which could pave the way for further research into understanding the genetics of complex traits, particularly in agriculture and biotechnology. The proposed method has great potential for application in other studies that require the integration of multiple phenotypic variables to gain a more holistic understanding of the genetic basis of various traits.</p> | |
| Is the title of the article suitable? (If not please suggest an alternative title) | <p>Your writing is interesting. However, there is an issue with the title or introduction. Here are some possible solutions:</p> <p>If you indeed want to focus on maize, then mention maize in the title.</p> <p>If you do not want to focus too much on maize, then avoid mentioning maize in the conceptual framework of the introduction. Instead, focus on the framework regarding GWAS statistical methods, and then in the final section, mention the research subject used, such as maize in this case.</p> | |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | Ya | |
| Is the manuscript scientifically, correct? Please write here. | I think ya, I do trust R-software. | |
| Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. | Better if the author want to add some recent references related to the topic. | |
| Is the language/English quality of the article suitable for scholarly communications? | Need to be improved. | |
| Optional/General comments | | |

PART 2:

| | Reviewer's comment | Author's comment <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i> |
|---|--|--|
| Are there ethical issues in this manuscript? | <i>(If yes, Kindly please write down the ethical issues here in details)</i> | |

Reviewer Details:

| | |
|----------------------------------|--------------------------------------|
| Name: | Rizki Bagus Nugroho |
| Department, University & Country | Politeknik Negeri Lampung, Indonesia |